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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/927,009	08/09/2001	Pankaj Vinubhai Shah	A01098A	4173

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EXAMINER

GOFF II, JOHN L

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/927,009

Applicant(s)

SHAH, PANKAJ VINUBHAI

Examiner

John L. Goff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### DETAILED ACTION

1. This action is in response to Amendment B filed on 8/25/03.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### *Claim Rejections - 35 USC § 102/103*

3. Claims 1-3 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Graham (U.S. Patent 6,356,700).

Graham is directed to a method for forming a moisture reactive hot melt adhesive.

Graham teaches a first step of reacting a polyol (e.g. a polyester polyol with a molecular weight in the range of 2,000-15,000) and a polyisocyanate in an NCO:OH ratio of 0.7-1.4 to form a hydroxyl-functional prepolymer. Graham teaches a second step of admixing the prepolymer with additional polyol (e.g. crystalline polyester polyol) and polyisocyanate in an NCO:OH ratio of 1.2-3 followed by reacting the admixture to form a moisture reactive hot melt adhesive.

Graham teaches the moisture reactive hot melt adhesive is used to bond a variety of substrates (Column 1, lines 21-29 and Column 2, lines 7-9, 14-16, 37—39, 44-46, and 49-53 and Column 3, lines 29-34, 38-46, 51-53, and 59-62 and Column 5, lines 11-21).

Regarding the limitation of admixing the prepolymer and additional polyol in a 9/1 to 1/9 weight ratio, Graham shows an example wherein the weight ratio of prepolymer to additional polyol is about 2/1 such that Graham meets the limitation (See example 2). Furthermore, it is noted Graham teaches the prepolymer content in the adhesive is 30-60%, and the additional

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polyol content is 5-70%. These broad ranges clearly overlap the ratios claimed. In any event, it would have been obvious to one of ordinary skill in the art at the time the invention was made to admix the prepolymer and additional polyol within the specified ranges in order to provide a useful reactive hot melt in Graham as the ordinary artisan would have been expected to experimentally determine the optimum ratio for a given property and adhesive being manufactured.

Regarding the limitation of the polyol having a molecular weight of 250-5,000, Graham teaches choosing a polyol having a molecular weight in the range of 2,000-15,000 such that Graham meets the limitation. Furthermore, it is noted Graham teaches that if the molecular weight is too high or too low efficient mixing can be difficult (Column 2, lines 44-58) such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the optimum polyol molecular weight to ensure efficient mixing as doing so would require nothing more than ordinary skill and routine experimentation.

#### ***Claim Rejections - 35 USC § 103***

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Graham as applied above in paragraph 3, and further in view of Anderson et al. (U.S. Patent 5,939,499).

Graham as applied above teaches all of the limitations in claim 4 except for a specific teaching of a method for applying the moisture reactive hot melt adhesive. However, as noted above Graham teaches the moisture reactive hot melt adhesive is used to bond a variety of substrates. One of ordinary skill in the art at the time the invention was made would have readily appreciated applying the moisture reactive hot melt adhesive taught by Graham using the general

technique in the art of applying the adhesive in a hot state to a substrate in the presence of moisture and cooling the adhesive after application of a second substrate as this technique is well known as shown for example by Anderson et al.

Anderson et al. are directed to moisture reactive hot melt adhesives. Anderson et al. teach a method for applying the adhesive comprising applying the adhesive to a first substrate at a temperature of 95 to 175 °C, contacting a second substrate to the applied adhesive, and cooling the adhesive. Anderson et al. teach the moisture reactive adhesive is cured by moisture in the atmosphere or by adding reactive compounds having free active hydrogens to the bond line (Column 7, lines 41-63).

### *Response to Arguments*

5. Applicant's arguments filed 8/25/03 have been fully considered but they are not persuasive. Applicant argues, "The examiner points to certain elements in Graham but concedes that Graham does not disclose admixing second components including the hydroxyl-functional prepolymer, a crystalline polyester polyol, and a polyisocyanate, the weight ratio of the hydroxyl-functional prepolymer to the polyol being from 9/1 to 1/9. Neither does Graham teach or suggest changing the ratio of prepolymer to second component polyol at all and particularly not to the range of ratios claimed by applicant". As noted above, Graham shows an example wherein the weight ratio of prepolymer to additional polyol is about 2/1 such that Graham meets the limitation. Furthermore, Graham teaches the prepolymer content in the adhesive is 30-60%, and the additional polyol content is 5-70%. These broad ranges clearly overlap the ratios claimed. Additionally, it would have been obvious to one of ordinary skill in the art at the time

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the invention was made to admix the prepolymer and additional polyol within the specified ranges in order to provide a useful reactive hot melt in Graham as the ordinary artisan would have been expected to experimentally determine the optimum ratio for a given property and adhesive being manufactured.

Applicant further argues, "Graham discloses molecular weights in the range of 2000 to 15,000, but states "if a lower molecular weight hydroxyl terminated polyester is used, i.e., one with a molecular weight of 3600... the viscosity of the resulting prepolymer is too high for efficient mixing..." (Graham, page 4, lines 19-22), thus points out the inapplicability of a first component polyol molecular weight of 3600 to Graham's own method and further fails to provide enablement of such a molecular weight in his process, thereby teaching away from the lower molecular weights claimed by applicant." As noted above and acquiesced by applicant Graham teaches using polyols having molecular weights in the range of 2,000 to 15,000. The molecular weight range taught by Graham overlaps that claimed by applicant such that Graham anticipates the claims. Furthermore, as to Graham teaching low molecular weight hydroxyl terminated polyesters with molecular weights of 3600 or lower result in prepolymers having viscosities too high for efficient mixing, Graham teaches the same about using high molecular weight hydroxyl terminated polyesters (Column 2, lines 46-48) such that Graham clearly suggests that it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the optimum polyol molecular weight (which would have at least included molecular weights of 3,601 to 5,000) to ensure efficient mixing as doing so would require nothing more than ordinary skill and routine experimentation.

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***Conclusion***

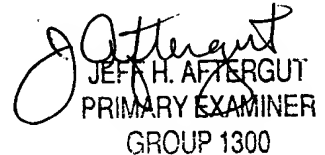
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **703-305-7481** (after December 2003 the telephone number will be 571-272-1216). The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 703-308-3853. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



John L. Goff



JEFF H. AFTERGUT  
PRIMARY EXAMINER  
GROUP 1300